

Automotive Technology Research

Our approach to research in automotive technology is two-fold. First, we want to ensure that students are getting to experience a project they are interested in. Second, we want to be answering our 3 primary research questions:

1. What is the impact of exposure to advanced automotive technologies through student-designed projects, on high school students?
2. How can student-led projects intersect with traditional curriculum in automotive technology programs?
3. What types of experiences can we co-design with students to give them exposure to the 'real world' work going on in automotive tech outside the classroom?

The process begins by meeting with students and their teachers to brainstorm ideas for an automotive build project that is intriguing to the group. Student voice is a huge component for our work across all subjects, so we go out to speak with students several times throughout the year. These discussions take place in a structured interview format to ask them about their learning and progress. The interviews are designed not only to help us determine whether or not the project was a success and created value for students but also to help us find ways to improve the program for future students.



Our first interviews helped us to understand the students and their backgrounds. The questions focused on their choice to enroll in the class, work outside of the classroom, motivations to work with auto tech and future career plans. The mid and post-interviews were fine-tuned to take a closer look at our three primary questions, ask if the students had concerns about their project, and listen to their reflections on the program in general.

Below, are the major questions that we chose to explore with quotes from the students that described their experience.

1. What is the impact of exposure to advanced automotive technologies on high school students?

High school students in automotive technology don't often have the opportunity to work with recently emerging technologies, such as electric motors. Students today will work with this tech in the future, so we feel it is relevant and important to explore both how and why this hands-on work might impact their future careers.



From our initial interviews, it was clear that the students recognized the shift in the automotive industry towards hybrids, electric vehicles, and automated driverless vehicles. Many students were hesitant and anxious to work with electric vehicles, and they saw this as an important opportunity to familiarize themselves with technology that is becoming such a large part of the automotive industry.

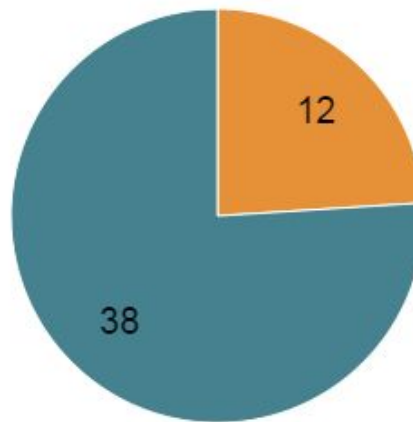
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As a Career and Technical Education (CTE) course, we knew that many of these students would be going into the automotive industry as a career. We found that a majority of the students across both programs would reference this project on a resume.

Do you think you will use this project on a resume or mention this to any potential employers?

- Maybe
- Yes



Of the 50 students that we interviewed, 38 said that they would either use this project on a resume, mention it to potential employers, or that they had already used this project on a resume. The other 12 students were categorized as “Maybe” as their answers included variations of “probably” and “possibly” with most responses pending the job that they were applying to.

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We also found that 75% of these students in the automotive programs we work with want to pursue careers in an automotive or automotive-related field. The other 25% had no intention to pursue an automotive career. Some students were attending it to gain the skills to

2. How can student-led projects intersect with traditional curriculum in automotive technology programs?

Automotive tech curriculum typically follows a traditional set of concepts and skills. We wondered if adding an element of student choice-based projects could both augment the curriculum as well as integrate additional components relevant to the industry to help better prepare students for careers.



At both Northshore and Meadowdale, these projects had a significant impact on the courses' regular automotive curriculum. We found that when students had more ownership over their project through helping design it, they were more connected to what they were working on.

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3. What types of experiences can we co-design with students to give them exposure to the 'real world' work going on in automotive tech?

Getting students outside of the automotive workshop and into the real world may give them a host of benefits. Face-to-face time with professionals in the automotive industry may highlight possible pathways to successful careers and expand student

understanding of the automotive industry. We are curious what types of experiences might spark student passion and interest.



Over the weekend of April 29th, 2016, students from our automotive technology program were given the opportunity apply for a special field trip to Mazda Raceway Laguna Seca and [Canepa](#). The trip put students face-to-face with professionals and gave them a chance to ask questions of experts in a live setting.

At Laguna Seca, the students were able to connect with Don Kitch Jr., Team Manager for [Team Seattle - The Heart of Racing](#) . The Heart of Racing is a guild created to raise money for pediatric cardiac care through Seattle Children’s Hospital. Amongst the stress and immense work behind a race weekend, The Heart of Racing team was still kind enough to show off their modified Porsche 911 GT3 racer to the students and most importantly, took the time out of their busy schedule to speak with the students. Specifically, the students got their questions answered by the Team Manager, Race Strategist, Lead Engineer, Data Systems and Telemetry Lead, Drivers, and a Fabricator. These led to some great conversations and was clear in their reflection on the event:

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